

REMARKS

Attached hereto is a Request for an Extension of Time and the appropriate fee.

The present invention enables fasteners to be mounted in structural sandwich panels such as in the floors of aircraft where weight is a prime consideration. As noted in the principally relied upon *Gorges* (U.S. Patent No. 4,557,100), proposed solutions have existed for a considerable period of time to address the problem of load transmission when fasteners are inserted in a structural panel so that support members can be attached to the panel such as the passenger seats in an aircraft. The *Gorges* patent cited art such as the *Rohe* patents from the 1960's and purportedly provided an improvement by providing a unitary fastener insert that could be forged instead of machined. As can be determined from the allowed claims, the provision of a lower counter bore region for reducing weight, which is the phantom line 86 shown in Figure 4, was the apparent point of novelty. The *Gorges* patent was filed approximately 20 years ago, and there is still a demand in this industry to provide an improved, economical and efficient insert that can facilitate automatic machine mounting in structural panels.

The present invention addresses this issue and resolves problems not contemplated nor addressed by the references applied of record. The present invention permits a flush mounting of an insert that not only assists in sealing, but further does not unduly stress the structural panel while mechanically locking the insert within the panel. The present invention further provides a serrated lower surface adjacent to a large flange to permit both alignment and securement of the insert during the assembly process so that a tool can then be inserted to automatically drive an entrance rim to be flush with the panel upper surface while mechanically extending a lower portion of the rim outward within the panel and beneath the surface of the panel. An inner grove

having a thinner wall than the thickness of the surface of the entrance rim has been specifically designed to bow outward for locking the insert. Appropriate sealing compound can be provided both in the interior of the rim for interfacing with a fastener head and also on the exterior cylindrical rim to further assist in sealing the insert to the panel. Thus, if a beverage such as coffee or soda is spilled in the cabin of the aircraft, such a sealing prohibits seepage from contaminating the below surface structure of the panel.

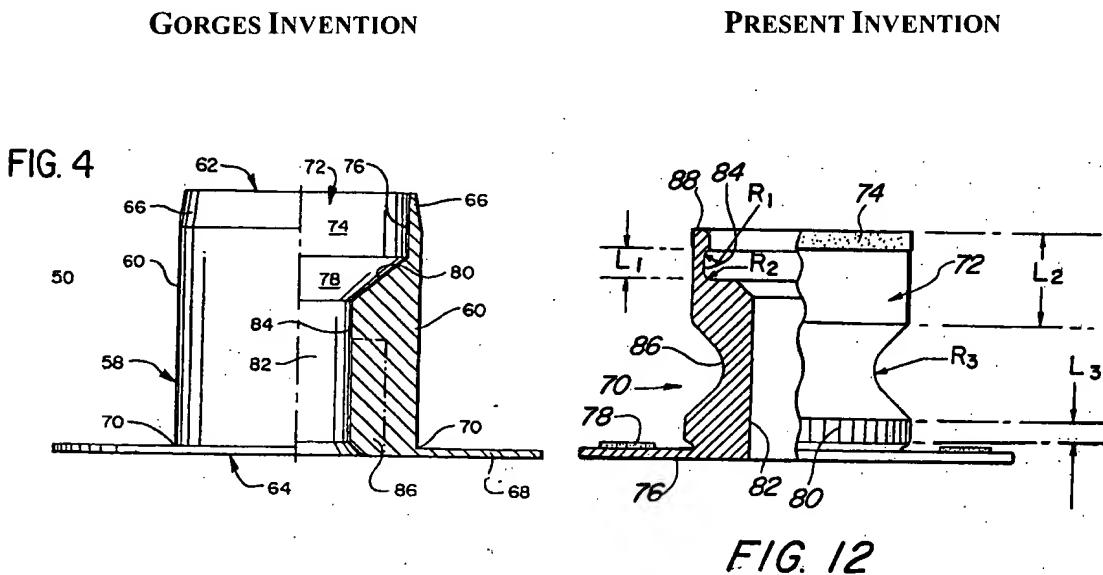
Accordingly, the novel insert and method of assembly of the present invention are neither contemplated, taught, nor suggested by any combination of the references.

Thus when differences that may appear technologically minor nonetheless have a practical impact, particularly in a crowded field, the decision-maker must consider the obviousness of the new structure in this light.

Continental Can Co. USA Inc. v. Monsanto Co.,
20 USPQ 2d 1746, 1752 (Fed Cir. 1991).

The *Gorges* reference was the principal teaching relied upon under 35 U.S.C. § 102 to reject Claims 8-10, 12-19 and 20. Referring to Claim 8, the spacer of the present invention defines a serrated outer surface of a metal body member adjacent a lower flange member. The *Gorges* reference only teaches a forged insert consisting of a shaft 58 with a generally uniform circular cross-section defined by the sidewall 60. See Column 6, Lines 24-26. There is no teaching of an equivalent serrated outer surface as defined, for example, on Page 16, Lines 23, through Page 17, Line 6, of the present invention. Additionally, there is no teaching of a first sealing compound positioned on an outer surface of the spacer to seal between the panel hole and the spacer as described, for example, on page 16, Lines 20-21, wherein a sealant material 74 is provided on an outer cylindrical surface 72.

As noted in Claim 9, the rim member of the present invention has an inner wall surface with an annular groove positioned to enable an upper edge of the rim member to be forced downward while another portion of the rim member extends outward, whereby the upper edge of the rim member can be mounted flush within the hole in a panel, while the rim member further extends radially outward beneath the surface of the panel. This annular groove 84 can be seen in Figure 12 and can be compared with Figure 4 of the *Gorges* reference as follows:



The annual groove 84 of the present invention has a thinner radial dimension than the entrance rim surface so that when an inserting tool provides a downward force, the annual groove will bow outward for locking the insert within the panel as shown in Figure 13.

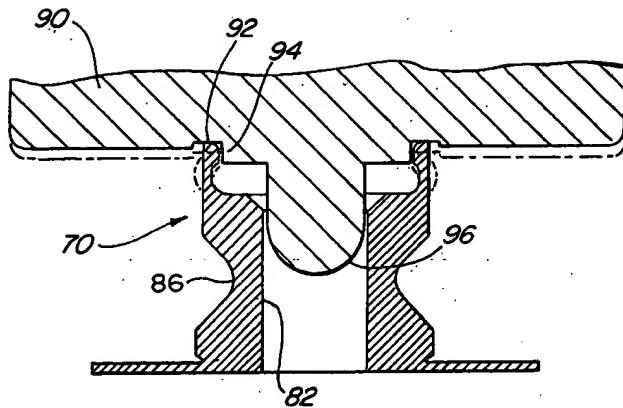


FIG. 13

As a result of this design configuration, the present invention can be installed flush with the panel upper surface without putting undue stress on the immediate adjacent panel surface. The *Gorges* reference clearly teaches an outward swaging of its entrance rim to capture and extend over the panel insert. As can be appreciated, such an installation can create stress as it is critically pushed downward to capture the panel surface, as seen in Figure 3. This is defined in Column 6, Line 60 as follows:

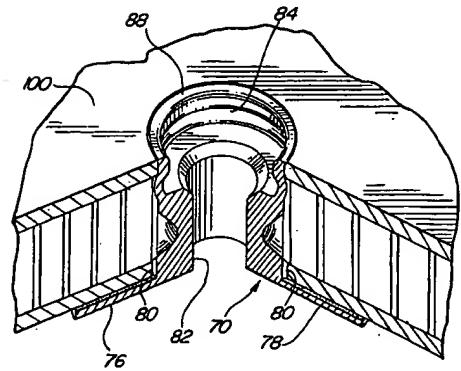
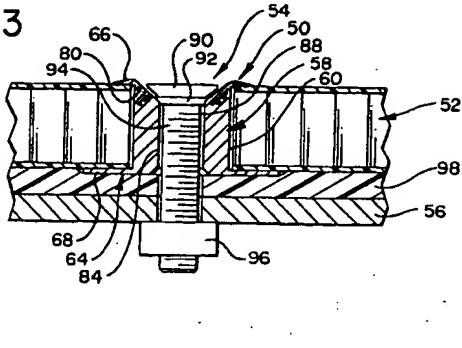
The tip of insert 50 is crimped or swaged over in the region of chamfer 66.

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GORGES INVENTION

PRESENT INVENTION

FIG. 3



As can be graphically seen from a comparison of Figures 3 and 14 above (marked in red), the *Gorges* reference teaches a mechanical interlocking relationship with the top face sheet of the panel and does not teach a flush position of the entrance rim 88 with a bulging of a lower portion of the entrance rim within the panel as shown in Figure 14 in accordance with the present invention.

The *Gorges* recognized that the prior art structure of Figure 1 had represented by the state of art for 20 years; see Column 6, lines 12-15. Now, some 20 years later, there is still room for improvements and advancements in this field even with highly skilled engineers working in the aircraft industry. The present invention represents such an improvement.

The *Gorges* reference is not capable of being mounted flush to the surface nor of providing a portion of the entrance rim to intentionally extend outward beneath a panel surface within the body of the honeycomb structure. In essence, the *Gorges* reference would be inoperative in achieving the advantages of the present invention.

[I]t is generally settled that the change in prior art device which makes the device inoperable for its intended purpose cannot be considered to be an obvious change

Hughes Aircraft Co. v. United States, 215 U.S.P.Q. 787,
804 (Ct.Cl. Trial Div. 1982)

The Office Action contended that the *Gorges* reference taught a sealing compound 92 in Column 6, Line 9. This line, however, simply refers to a compressive seal for the fastener member, not for sealing the insert to the body of the panel. Figure 3 of the *Gorges* reference shows 92 as apparently a ring seal about the flanged head of the fastener 94. There is no teaching of an outer sealant material on an insert, nor even an inner sealant material about the rim of an insert in the *Gorges* reference.

The Office Action contended that an "inner annular groove 86" was taught in *Gorges*. This refers, however, to simply a counter bore 86 at the bottom of the insert for the purpose of reducing weight. See Column 6, Lines 38-41. There is no inner annular groove adjacent a rim of the *Gorges* reference insert, and the counter bore 86 isn't for the purpose of permitting a portion of the rim to bow outward for locking in the interior of a panel.

Referring to the independent Claim 16, our spacer is clearly defined with a rim member having an annular groove to permit the rim member to be formed outward when flush mounted within the sandwich panel, and in the combination of the upper edge of the rim member, it is positioned adjacent a perimeter of the hole and is flush with the surface of the upper planar face while of a portion of the rim member is extended radially outward below the upper planar face plate. There is no teaching of such features in the *Gorges* reference.

Claims 1-7 and 11-18 were further rejected over a combination of the *Gorges* reference in view of the *Gauron* (U.S. Patent No. 4,812,193). The *Gauron* reference teaches an injection molded plastic fastener purportedly of a type that will bond with a potting resin. A potting resin

is a material that will be inserted between the exterior surface of the insert within the panel to further assist in locking the insert into the panel. The *Gauron* reference purportedly provides a series of disks 80 so that air spaces or voids will not occur when a conventional potting procedure is attempted. In this regard, *Gauron* shows in Figure 12 the purported air spaces that can cause a problem. His solution as graphically shown in Figure 17 and Figure 18 where purportedly the potting resin extends completely about the insert between the upper and lower face sheets of the panel.

Gauron uses a conventional prior art positioning tab 50 for holding the plastic insert within the hole and completely relies upon the potting epoxy for securing the plastic insert within the sandwich panel. As such, the *Gauron* reference is incapable of providing the missing teachings from the *Gorges* reference as set forth in our present claims. The *Gauron* reference apparently was primarily cited for teaching a resin material as "a sealing member" when, in fact, the resin material is a potting material for actually locking the *Gauron* insert within the panel.

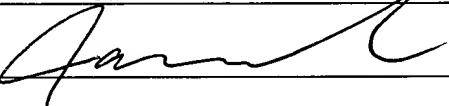
The Office Action acknowledged that neither *Gorges* nor *Gauron* taught expressly the method of assembling a spacer into a sandwich panel as defined in our Claims 1-7, but contended it would be an obvious method of setting up the device of the claims. In view of the above comments, it is clear that the *Gauron* reference would use the conventional positioning mounting tab 50, and the *Gorges* reference, as shown in its Figure 3, uses a conventional outward swaging method for a forged insert. Neither of these references alone or in combination teach the method steps of the present invention.

The newly submitted dependent claims add further distinguishing features and are also believed allowable as depending from the independent claims that have been distinguished above.

It is believed that the case is now in condition for allowance, and an early notification of the same is requested. If the Examiner believes that a telephone interview will help further the prosecution of this case, he is respectfully requested to contact the undersigned attorney at the listed telephone number.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on August 11, 2003.

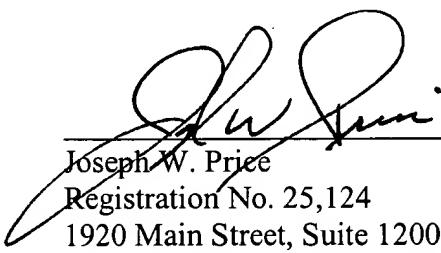
By: James Lee


Signature

Dated: August 11, 2003

Very truly yours,

SNELL & WILMER L.L.P.


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